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TAXONOMY OF BACILLUS ISOLATES FROM MARINE SEDIMENTS

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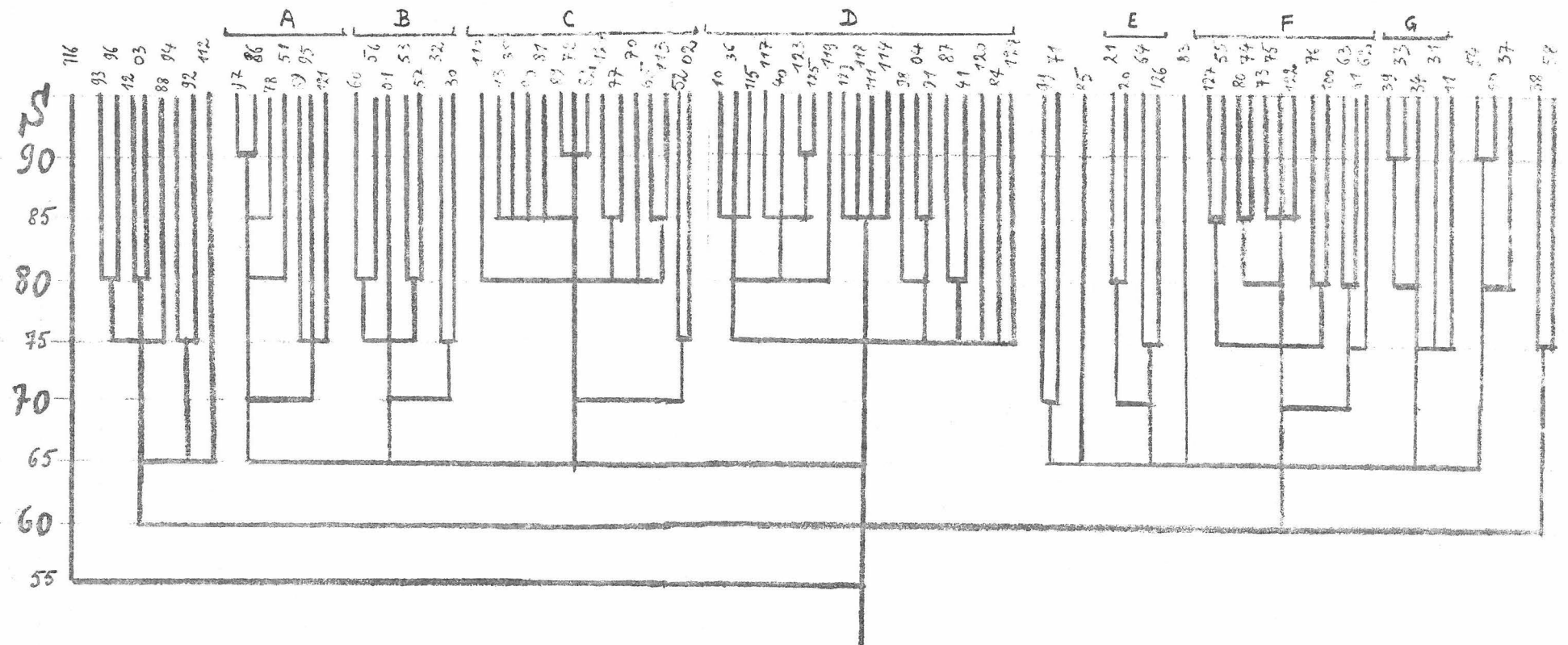
This report will summarize recent advances very briefly. A more extensive treatment will be given after the analysis of an additional large group of isolates, now in progress, is completed.

- 1) In addition to a program for the computation of similarity coefficients that was already available, a new clustering program was worked out with help of Mr. Th.Dhondt (Dept. of Mathematical Analysis, V.U.B.) to whom we express our sincere thanks.
- 2) Many new tests were introduced and two students of pharmacy made valuable contributions to this: Miss Ingrid Stoops devoted her graduation work to the study of the assimilation of organic compounds as the sole source of carbon and Mr. J.Goossens devoted his to the comparative study of antibiotic sensitivities. On the other hand, about 30 tests were deleted for any of three reasons : (1) lack of clarity or reproducibility; (2) redundancy or (3) complete or near uniformity of results.
- 3) We became aware of the efforts of Prof. G.J. Bonde (Institute of Hygiene, Aarhus University) at numerical taxonomy of the mesophilic species of Bacillus based on the examination of a large set of isolates of various origins. We are indebted to Dr. Bonde for sending us a prepublication copy of his work, the centrotpe strain of each of his 10 clusters, and their encoded description.
- 4) The accompanying dendrogram shows the state of affairs after completing the analysis of 67 of our own isolates, of the 10 Aarhus centrotpe strains and of 11 IPP collection strains representing as many nomenspecies.

At this stage, 46 out of 67, or roughly two thirds of our isolates already joined in clusters of 4 or more at the joining level of 70.

- 5) No description of the bacteria in the major clusters will be given here, but attention may be drawn to the unequal distribution of the 10 Aarhus centrotypes strains, of which no less than 6 were to be found in ~~one~~ cluster D, while clusters A, B, E, F and G contained none.

Our results confirmed the invalidity of classical taxonomy; they also suggest that there is little agreement between our own taxonomic scheme which is based exclusively on marine benthic bacteria, and that of Bonde which is based on a much wider sampling. The probable origin of this discrepancy might well be that most of the bacteria we find in North Sea sediments up to this time were never examined, let alone classified.



Simplified dendrogram for 88 strains (based on 59 selected tests). Ordinate: joining percentage (average similarity coefficient x 100). Origin of strains (figures on top of dendrogram):

1-89 and 120-129: 67 own isolates;

90-100: 11 strains from the Institut Pasteur of Paris (IPP) collection, each of a different nomenspecies;

110-119: 10 strains from Aarhus Institute of Hygiene; each is the centrotpe of a different phenon.

A to G (top): groups formed at $S > 70$ and containing at least 4 of our own isolates.